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| **Activity 3.2.9 Sizing a Spread Footing**  |

Equipment

* Engineering notebook
* Calculator
* Pencil

Procedure

Find an economical spread footing size for the following situations.

1. A column carries 5400 pounds of load and is supported on a spread footing. The footing rests on coarse sand. Design the smallest square footing (to the next 3 inch increment) that will safely carry the column load. The footing will be 1ft 9 in. deep and will be constructed of cast-in-place concrete. Note: Concrete weighs 150 pcf.
2. A column carries a load of 22 kips and is supported on a 2 ft thick spread footing which rests on clay. Size the smallest round footing (to the next 6 inches) that can support the load.
3. An existing building is suffering from cracks in the exterior walls. The investigating engineer wants to ensure that the foundations are not overloaded. The existing columns carry dead + live load of 45,000 pounds. The footings are 3 ft 6 in. x 3 ft 6 in. x 1 ft 6 in. thick and rest on sandy soil. The soils report estimates the allowable soil bearing pressure to be 2500 psf. Determine whether the existing footings are adequate to carry the load.